RESPONSE SUMMARY

PUBLIC INFORMATION MEETING

FEBRUARY 4, 2005

PRADO DAM CONSTRUCTION

On February 4, 2005, the U.S. Army Corps of Engineers, Los Angeles District (Corps) held a public information meeting to brief residents and businesses in the vicinity of Prado Dam on the Santa Ana River Mainstem Flood Control Project, current construction at the dam as part of the project, and the storm and seepage events that occurred on January 13 and 14.

Col. Alex Dornstauder, District Commander, conducted the meeting attended by about 75 people at Prado View Elementary School in Corona.

The main part of the meeting consisted of public questions/comments and responses by Col. Dornstauder and his staff. People attending the meeting asked questions and commented about:

- Prado Dam Features and Safety
- January Storm and Seepage Events
- Reservoir Operations in the Future
- The Santa Ana River Flooding Problem
- Other

We organize the questions and comments around those categories and not necessarily in the order in which people made them. Corps responses are those made at the meeting or modified based on up-to-date information. If meeting attendees believe that this summary does not accurately reflect public comments expressed at the meeting, they are invited to contact:

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PRADO DAM FEATURES AND SAFETY

(1) Is the outlet channel concrete? How far below the dam does it extend?

Response. Yes, it is concrete. It extends to just downstream of Highway 71.

(2) What is the current spillway height?

Response. Elevation 543 feet.

(3) Why increase the height of the spillway so much?

Response. It is sound and universally accepted engineering practice to build an ungated spillway to a certain elevation below the height of a dam. The spillway's purpose is to prevent the overtopping of a dam by passing (uncontrolled) the probable maximum flood.

(4) What is the composition of Prado Dam?

Response. Prado Dam is an earthfilled compacted embankment with an impermeable clay inner core and sandy outer slopes. The primary intent of the outer material is to provide strength to the clay middle. A seepage cutoff all the way down to the bedrock is provided by means of the clay core and a driven sheetpile wall. For clarity, the seepage discussed below did not occur through the constructed dam but through the natural hill on the east side of the dam (the left abutment). This natural material will be removed and the constructed dam will be continued across to the painted concrete spillway later in this contract.

(5) How resistant is the dam to earthquakes?

Response. The dam is designed and constructed to withstand the maximum probable earthquake for the area. The dam contained seismic sensors prior to the current construction and will contain them again when we complete construction.

(6) What is the probability of a dam catastrophe?

Response. The probability of dam failure is so low as to be statistically insignificant. As stated above, the spillway is designed the pass the probable maximum flood, which is the largest flood event reasonably possible at the damsite. The probable maximum flood is determined by computing the flood resulting from the occurrence of the Probable Maximum Precipitation as defined by the Hydrometeorological Branch of the National Weather Service.

(7) I live in the Mobile Home Park below the dam with my wife and children. Would you, as a husband and father, still live in the park?

Response. I assure you that the dam is safe. It would be of no concern to me in living where you do.

(8) How do you staff dam operations? Is there someone on-site 24 hours every day?

Response. The Corps Reservoir Operations Center in Los Angeles monitors inflow into the reservoir 24 hours per day, 7 days a week. Whenever we project a rising water elevation over elevation 490, a dam tender is at the dam around-the-clock. During construction, of course, personnel are on-site during the day.

(9) How do you inspect and monitor the dam?

Response. Through regular visual inspections.

(10) The capacity of the current outlet works and channel is 10,000 cubic feet per second (cfs). The new outlet works and channel will have a capacity of 30,000 cfs. Does that mean a total of 40,000 cfs?

Response. No. We will remove the current outlet works and channel.

(11) When will you complete the raising of the dam and the construction of the new outlet works?

Response. The current construction schedule shows the work being completed in October 2006.

(12) When will you complete the levee along the Green River Golf Course?

Response. The current schedule is to complete construction in 2008.

JANUARY STORM AND SEEPAGE EVENTS

Flood Control and Water Conservation

(13) What relationship was there between reservoir operations during the January storm and water conservation for Orange County?

Response. Prado Dam has two congressionally authorized purposes: flood control and water conservation. All the storage space behind Prado Dam is allocated for flood control, which is the primary purpose of the dam. Operation of the dam for water conservation is limited such that it does not affect the level of flood protection provided by the dam. This was the case during the January flood when water that had been held in storage for water conservation was released in anticipation of the January flood inflow.

Reservoir Releases

(14) Why, on January 6-7, were you not releasing 5,000 cfs from Prado? You knew that a new storm was coming in.

Response. The Prado Dam releases of up to 3,000 cubic feet per second made during 6-7 January were adequate to evacuate reservoir storage space in advance of the approaching storm.

(15) Why not drop the Prado water level all you can when you're aware of future storms coming in?

Response. In the midst of a 5-year drought affecting the entire southwest, maximizing conservation of local runoff for consumptive use is a high priority. Operating on a forecast basis, water control decision makers want to be reasonably sure of refilling water held in storage for conservation before releasing it to the ocean.

(16) When did you first start releasing water from Prado at 9,800 cfs?

Response. January 11 at 11 AM.

(17) On January 11, were you releasing 9,800 or 10,000 cfs from Prado?

Response. On January 11, Prado Dam releases varied between 8,425 cfs and 9,862 cfs.

(18) Don't your calculations predict how much water will be coming into the reservoir and therefore allow you to increase discharges?

Response. Yes. We rely on National Weather Service forecasts of precipitation and runoff as well as on a contract meteorologist's quantitative precipitation forecasts. We used this information to estimate reservoir inflow and to make reservoir release decisions. On January 8-9, we knew that we would have to increase our discharge rate to 10,000 cfs. But we would have to do so gradually, since this would be the first time for that rate. We had to test the system. By this time, we thought that the cofferdam might overtop because of the inflow rate, but we were never concerned about the cofferdam's integrity. On January 13-14, we had concern whether increased flows in the river below Prado might rupture the Santa Ana River Interceptor (a sewage conveyor line) that runs beneath the riverbed from Riverside to Orange County. As you can understand, a sewage rupture would have been devastating. So we reduced the Prado discharge to 5,000 cfs to inspect the Interceptor. When seepage from the dam's left abutment became a public concern, we increased the discharge to 10,000 cfs.

(19) Have you set up procedures for notifying the City of Corona when you increase releases to 10,000 cfs? I'd like a copy of the procedures.

Response. Yes. The 10,000 cfs release from Prado Dam in January 2005 was the largest release from the dam since it was completed in 1941. We compile a comprehensive notification list of agencies, businesses, and individuals affected by Prado Dam operation and update it annually. The notifications address both inundation impacts within Prado reservoir area and releases from the dam. The entity being affected provides the point-of-contact and contact information (phone numbers, fax number, and/or e-mail address) as well as the trigger reservoir elevation or release magnitude of which they wish to be notified. In addition there is a Corps of Engineers internet website for reservoir regulation information [www.spl.usace.army.mil/resreg/] where real-time weather, runoff, and reservoir data is available. The City of Corona and Corona Airport are notified when the reservoir pool level is forecast to reach or exceed 490 feet and 510 feet. The

Corona Police Department is notified if the reservoir pool level is forecast to reach or exceed elevation 512 feet.

The Coffer Dam

(20) Was the release rate on January 11 so as to try to not overtop the cofferdam?

Response. Yes.

(21) What was your concern about trying to not overtop the cofferdam?

Response. The purpose of the cofferdam is to protect the construction work in the excavation area, such as Intake Tower, Transition Structure, etc. The reason to prevent overtopping of the cofferdam is to avoid delay in construction.

(22) The cofferdam is thin. Will it remain the same thickness throughout the rest of construction? When you're finished, what will the cofferdam be like?

Response. The intent of the cofferdam is to protect the work in the excavation. The cofferdam will not be modified until it is removed at a later phase of the construction when it is no longer necessary.

The Threat from Seepage in the Abutment

(23) Were you concerned that the seepage in the abutment might cause problems downstream?

Response. No. We expected some seepage. Also, see response to question number 4.

(24) On January 10, the Corona Police Chief was told that he had to evacuate us residents of the mobile home park when reservoir releases reached 10,000 cfs. But on January 11 we weren't told anything. Then when releases increased again to 10,000 cfs on January 13, we were evacuated. Why weren't we evacuated on January 10? The only difference appeared to be "minor seepage." It had to be more than minor. And you first denied seepage and then reported it to the media.

Response. We observed seepage in the abutment on January 12, approximately 24 hours after the cofferdam was overtopped. We continued to monitored it. The Corps of Engineers never denied that there was seepage in the natural abutment.

(25) What is seepage vs. a leak?

Response. There are similarities in the common understanding of the both terms; technically, the proper term is seepage. No one at the Corps of Engineers ever used the word "leak."

(26) We heard there was a leak. Communication would have been helpful.

Response. No one at the Corps of Engineers ever used the word "leak." In any event, we're now communicating better with city officials and departments.

(27) Your Chief of Construction said that he could not say with 100-percent certainty that there was no issue. Two experts said there was no problem; three said there was an issue.

Response. In science and engineering, experts can always disagree. No engineer likes to say anything with 100-percent certainty. Evaluating the conflicting opinions, Corps management concluded that there was no problem. The City of Corona, wanting to ensure the protection of its residents, decided that evacuation was a prudent, precautionary, and necessary action. We support and applaud that decision. We as engineers can be virtually certain, but never absolutely certain.

(28) When it's raining, how can you detect seepage?

Response. At times it can be very difficult to distinguish between surface runoff and through seepage. In this case, it was clear where the water was coming from.

(29) What was the height of the detected seepage?

Response. The vast majority of the seepage occurred along the top of the bedrock between elevations 517 and 521.

Impacts on the Airport

(30) If you had dropped the reservoir water level to elevation 480, what impact would that has had at the airport?

Response. Dropping the reservoir water level to elevation 480 at the start of the January flood event would have lowered the maximum observed elevation of the reservoir pool from 527.4 feet to about 525.7 feet (a difference of 1.7 feet). The City of Corona Municipal Airport is located between elevations 514 and 534 feet. However, the minimum level at which flood control releases can be made is elevation 490 feet, which is termed the "debris pool." A sufficient depth of water above the top of the outlet gates must be maintained to prevent sucking floating debris such as vegetation into the gates and cutting off flow through the gates. Therefore we can never lower the reservoir pool below elevation 490 feet in anticipation of making flood control releases since we need a debris pool. In any event, releases around that elevation would make a fraction of a difference, since there is much less storage for every foot drop.

(31) Releasing more water from the reservoir to just a few feet would have made a huge difference at the airport. The damage to the airport from the January storm is heavy. As a result, my business and 17 others have been destroyed. Cow wastes came in with the water and damaged equipment. I tried talking to you during the storm and got no response.

Response. We understand your anger, frustration, and significant loss. We ask you to understand the purpose of Prado Dam and our operational constraints with respect to the airport. Prado Dam was completed in 1941. In 1959, the Corps leased about 34 acres in Prado basin to the City of Corona for use as a municipal airport. In 1967, the Corps leased about 1,139 acres in Prado basin to the City of Corona for parks and recreation purposes. In 1968, the Corps terminated the

original airport lease and added the airport acreage into the new parks and recreation lease. Both the original lease and the current parks and recreation lease contained multiple terms and condition with the provision that the land would be subject to periodic, if infrequent, flooding. The primary purpose of the dam is to provide flood protection on the Santa Ana River downstream of the dam. The dam accomplishes flood protection by storing flood inflow in excess of what the downstream channel can safely convey. Storing flood inflow from large flood events results in inundating extensive areas behind the dam that were acquired in fee title for this purpose. The January 2005 flood event was the largest volume flood event at Prado damsite since at least 1919. In 64 years since Prado Dam was completed in 1941, inflow into the reservoir has inundated the airport to various degrees seven times: in 1969, 1978, 1980, 1983, 1993, 1998, and 2005.

(32) Does the current Prado Dam construction project include dikes to protect the airport?

Response. No. Our current project is authorized for the purpose of controlling the increased flood potential that has developed over the years since the original dam was constructed. With that, we have to increase the area of the Prado Basin for flood control storage primarily by acquiring the additional real estate between the existing reservoir take line at elevation 556 and the new reservoir take line at elevation 566. However, in some instances (specifically around the perimeter of the basin) we have determined that it is more cost effective to construct a dike around an area rather than purchasing the land rights. In the case of the Corona airport however, the airport was built within the existing flood storage zone and we already own the land rights for the purposes of flood control.

(33) You're basically shutting down the airport.

Response. As stated earlier, the airport is subject to periodic, if infrequent flooding. We do everything we can, consistent with our objective to control downstream flooding, to limit the depth of inundation within the reservoir area and to provide notification of impending inundation.

(34) When did you know that the airport would flood?

Response. We projected a potential problem when the reservoir level reached elevation 500 on Sunday evening, January 9, at which time we notified the City of Corona, which we are required to do. We were then in hourly contact with the city to provide updates. We understand that people started to move planes on Tuesday, January 11.

(35) I'm a flier. I only found out about the problem when I called regarding preflight notification, only to find out that the airport was closed. There should have been much more notification.

Response. See response to the question above.

(36) We heard that San Antonio Dam upstream was releasing water. We pleaded with you to close it. We heard nothing.

Response. We cut off releases from both San Antonio Dam and Seven Oaks Dam during the January flood event to reduce the volume of inflow to Prado Dam.

(37) At the airport, we have no water and no power. We're waiting for the President to sign a disaster declaration. Do you have any pull?

Response. On February 4, 2005, President Bush signed DR-1577 in response to "California Severe Storms, Flooding, Debris Flows, and Mudslides." The declaration authorized individual assistance in Los Angeles and Ventura counties; public assistance in Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara and Ventura counties; and Hazard Mitigation Grant Program in Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura counties. For additional information, please see http://www.fema.gov/news/event.fema?id=4003.

Impacts on the Mobile Home Park below the Dam

(38) What is the height of the mobile home park?

Response. The golf course is at elevation 400. The levee will protect the mobile home park. The edge of the trailer park facing the river ranges in elevation from 428 – 433 feet.

(39) How much did the river rise in the vicinity of the mobile home park? What was the effect?

Response. The mobile home park is not in the floodplain of a 10,000 cfs release from Prado Dam.

(40) How safe is the mobile home park?

Response. It is very safe.

(41) We need another exit at the mobile home park?

Response. (from the audience) The Corona Chief of Police said that he can bulldoze another exit in an emergency.

Flood Insurance

(42) Will the January storm result in reevaluating flood insurance requirements?

Response. No. You continue to have 100-year flood protection.

Effect of Seven Oaks Dam

(43) Did Seven Oaks Dam reduce the amount of water flowing into Prado?

Response. Yes. The dam worked exactly as planned to help keep water out of Prado until we could safely discharge from Prado.

(44) How much water was in Seven Oaks Dam?

Response. The dam is 500-feet high. When the storm hit, stored water was 2 percent of the reservoir's capacity. At the storm's peak, the reservoir was 15-percent full.

RESERVOIR OPERATIONS IN THE FUTURE

(45) In the future, will you release water from the reservoir earlier up to 10,000 cfs?

Response. Yes, if we need to do so.

(46) We need a reliable official whom people trust who will call representatives of potentially affected areas when there is a potential flooding problem. The official should not be an elected official.

Response. Please give us the names of people to represent the potentially affected areas so that we can set something up.

(47) If there is any damage to the dam, will you post the information on your website?

Response. Yes.

(48) Do you have new procedures for interfacing with the Corona Police and Fire departments?

Response. Yes.

(49) Is there a single contact at the Corps to find out what is happening?

Response. Yes.

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THE SANTA ANA RIVER FLOODING PROBLEM

(50) What are the effects of snow melt, more rain, and more urbanization on flooding in the area, replacing porous land?

Response. The hydrologic impact of the urbanization underway in Riverside and San Bernardino counties is to increase the runoff response of the watershed above Prado Dam. The effect of replacing natural soil surfaces with paved surfaces, constructing storm drain and channel systems, and eliminating natural surface storage areas is to increase the volume and peak flow while reducing the response time of the watershed to incident rainfall. The Santa Ana River Mainstem Flood Control Project takes these and other factors into account in providing almost 200-

year flood protection (a flood size that has the potential of striking 0.5-percent in any year) downstream of the dam. The project provides this flood protection for future conditions of urbanization as forecast by local government planning agencies.

(51) Why did the City of Corona give permission to build more houses?

Response. We can 't answer for the city. But we're certain that it took into account the presence of Prado Dam and its safety.

OTHER

(52) Will your planned test release from Seven Oaks Dam affect us?

Response. No. The total volume of the hydraulic test releases from Seven Oaks Dam will be about 6,000 acre feet, only a portion of which will reach Prado Dam (total capacity of 188,000 acre feet). The tests will be conducted at a time when it can be handled safely at Prado Dam without adverse impact to anyone upstream or downstream of the dam.

March 2005